

# BETTER BUILDINGS



AMERICAN SHEET AND TIN PLATE COMPANY  
PITTSBURGH

Digitized by



ASSOCIATION  
FOR  
PRESERVATION  
TECHNOLOGY,  
INTERNATIONAL

[www.apti.org](http://www.apti.org)

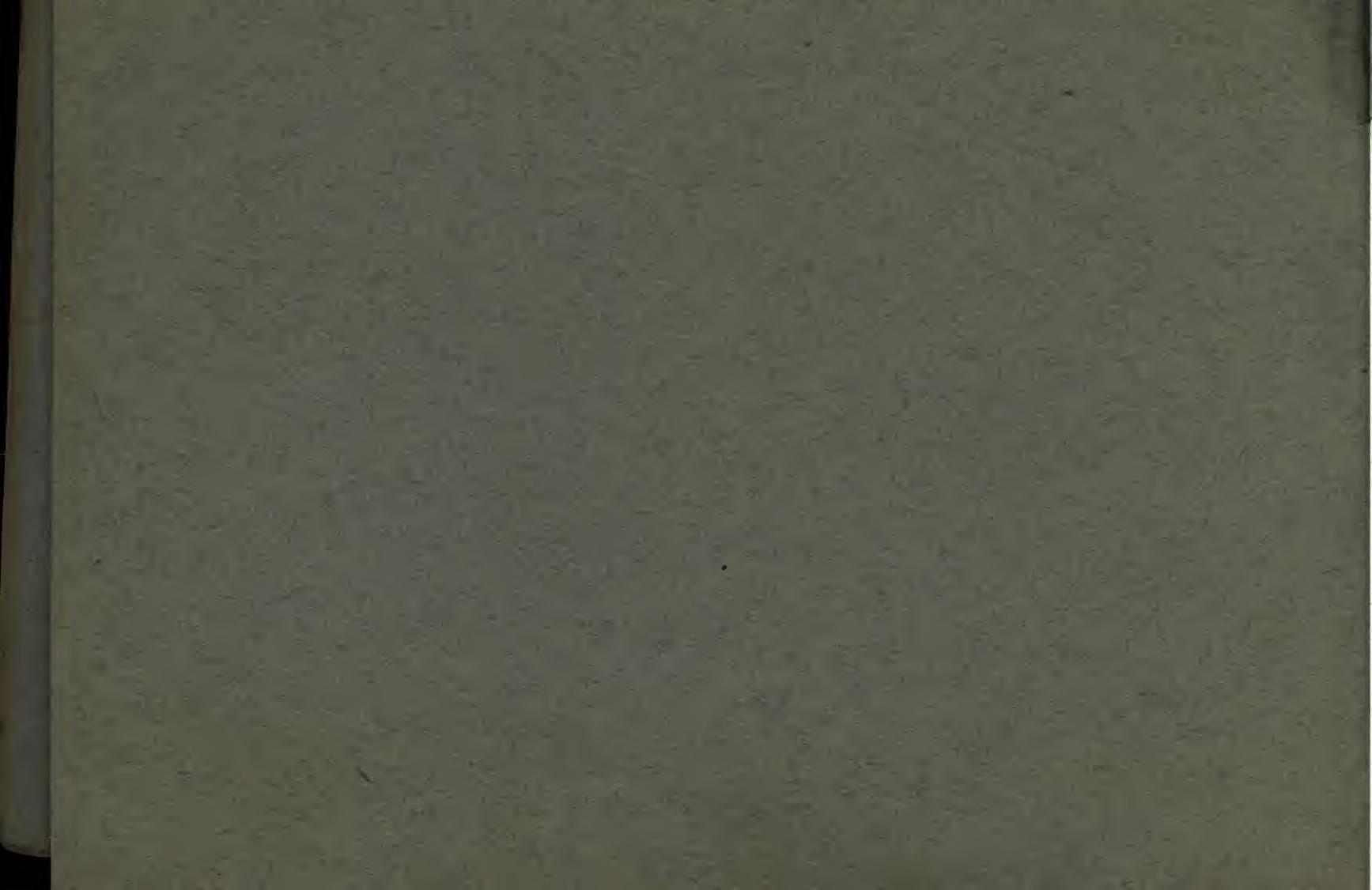
BUILDING  
TECHNOLOGY  
HERITAGE  
LIBRARY

<https://archive.org/details/buildingtechnologyheritagelibrary>

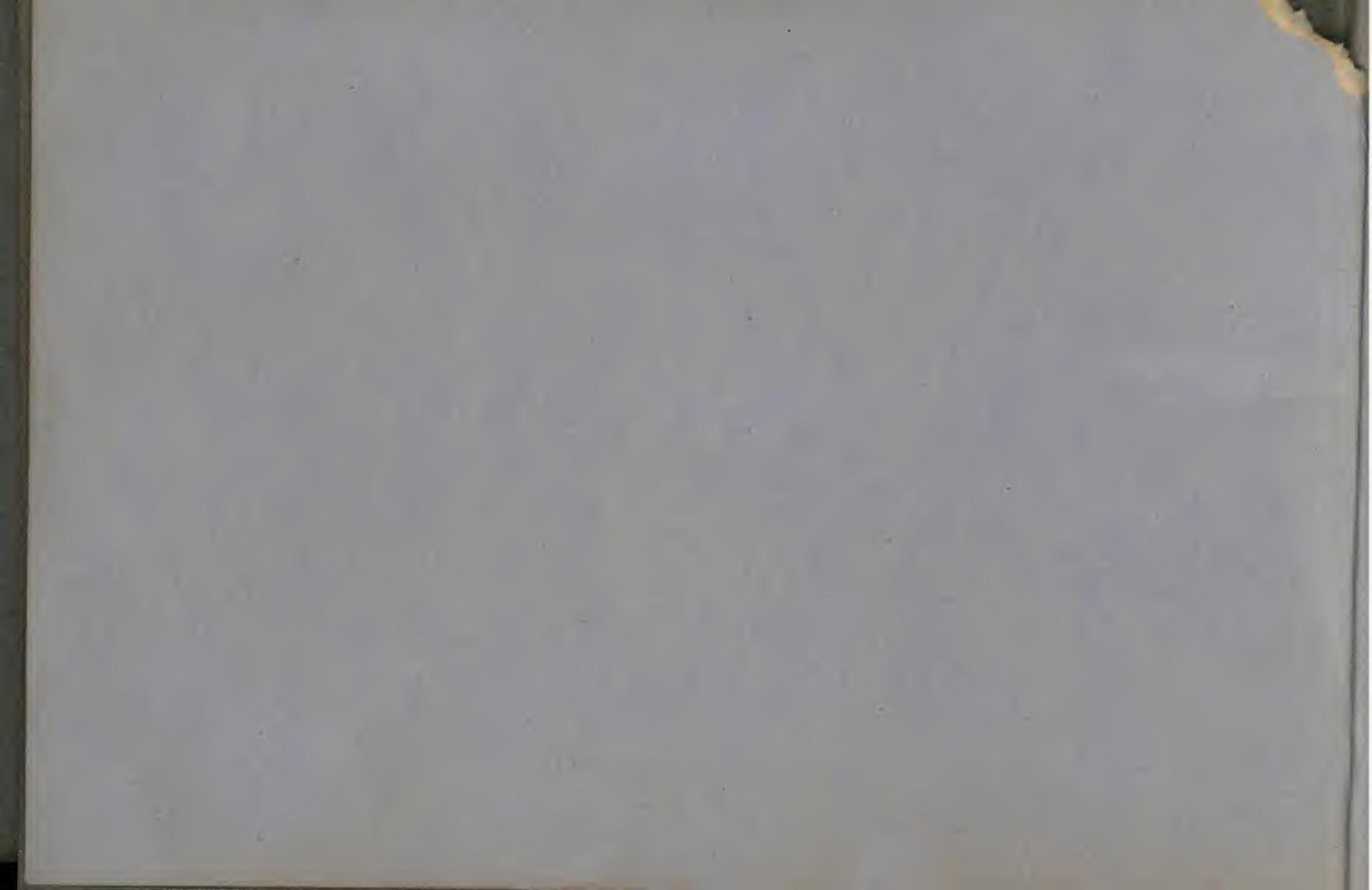
From the collection of:

Alan O'Bright





*Published by*  
*American Sheet and Tin Plate Company*  
*Pittsburgh Pa.*



# “BETTER BUILDINGS”

A Book of Information relative to the Uses of  
Formed Metal Roofing and  
Siding Materials



## American Sheet and Tin Plate Company

GENERAL OFFICES: PITTSBURGH, PA.

### DISTRICT SALES OFFICES

CHICAGO

DETROIT

PHILADELPHIA

CINCINNATI

NEW ORLEANS

PITTSBURGH

DENVER

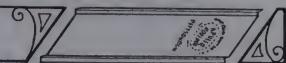
NEW YORK

ST. LOUIS

Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City  
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle



# American Sheet and Tin Plate Company



Vandergrift-Apollo Works, largest sheet mill in the world, and one of our thirty-five modern plants manufacturing a complete line of high grade

## Sheet and Tin Mill Products of Every Description

### NAMES AND LOCATIONS OF WORKS

NAME	LOCATION	NAME	LOCATION	NAME	LOCATION
<i>Aetna-Standard</i>	Bridgeport, Ohio.	<i>Laughlin</i>	Martins Ferry, Ohio.	<i>Pittsburgh</i>	New Kensington, Pa.
<i>American</i>	Elwood, Ind.	<i>Leechburg</i>	Leechburg, Pa.	<i>Roll and Machine</i>	Canton, Ohio.
<i>Cambridge</i>	Cambridge, Ohio.	<i>Midland</i>	Muncie, Ind.	<i>Saltzburg</i>	Saltsburg, Pa.
<i>Canal Dover</i>	Canal Dover, Ohio.	<i>Mercer</i>	South Sharon, Pa.	<i>Scottdale</i>	Scottdale, Pa.
<i>Chester</i>	Chester, W. Va.	<i>Monongahela</i>	Pittsburgh, Pa.	<i>Sharon</i>	South Sharon, Pa.
<i>Crescent</i>	Cleveland, Ohio.	<i>Morewood</i>	Gas City, Ind.	<i>Shenango</i>	New Castle, Pa.
<i>Dresden</i>	Dresden, Ohio.	<i>National</i>	Monessen, Pa.	<i>Sabraton</i>	Morgantown, W. Va.
<i>Gary</i>	Gary, Ind.	<i>New Castle</i>	New Castle, Pa.	<i>Struthers</i>	Struthers, Ohio.
<i>Guernsey</i>	Cambridge, Ohio.	<i>New Philadelphia</i>	New Philadelphia, Ohio.	<i>United States</i>	Demmler, Pa.
<i>Humbert</i>	Connellsville, Pa.	<i>Old Meadow</i>	Scottdale, Pa.	<i>Vandergrift</i>	Vandergrift, Pa.
<i>Hyde Park</i>	Hyde Park, Pa.	<i>Pennsylvania</i>	New Kensington, Pa.	<i>Wellsville</i>	Wellsville, Ohio.
<i>La Belle</i>	Wheeling, W. Va.	<i>Piqua</i>	Piqua, Ohio.	<i>W. Deweese Woods.</i>	McKeesport, Pa.



**I**N offering this book *“Better Buildings,”* we realize that at its best it can be but suggestive. As soon as the wide awake builder discovers the possibilities of the materials described herein, he will at once see constructions and applications as adapted to his own requirements, much more varied than can be even hinted in this book.

The Formed Roofing and Siding Materials of this Company are manufactured with particular respect as to quality. Modern mill equipment, good materials, skilled labor and rigid inspection mark the manufacture of these, as well as of the other Sheet and Tin Mill Products made by this Company. Our stencils on such products are an assurance to the purchaser that the goods are all they are represented to be, and are everywhere recognized as the standards of the world.



## ← BRANDS →

In order that buyers and users may always identify our Roofing and Siding Products, we show a facsimile of our brands which are stenciled in red on the top of each bundle of Corrugated and Formed Sheets. All Galvanized patterns bear the stencil "APOLLO," as indicated; while on the Painted and Plain patterns it is "AMERICAN." See that you get these brands. They insure *full weight* per square, standard corrugations and the best quality.



## Formed Metal Roofing and Siding Materials

Modern progress demands more and better buildings. As good timber becomes more scarce and masonry more expensive, naturally the investigative mind is looking for a better and more economical building material that not only will give the maximum of protection at minimum cost, but also will carry with it those additional features desired in such better buildings, but lacking in so many of the materials being used at the present time. This has led to the introduction of Metal Roofing and Siding Materials as high grade building products worthy of the most favorable consideration. The era of iron and steel construction is just at its beginning. The possibilities of sheet metals have never yet been fully realized. These Formed Roofings and Sidings are an ideal material for most classes of buildings, and they offer so many advantages that the careful builder and owner of buildings cannot afford to overlook them. We suggest a few of their leading features:

**GOOD PROTECTION AND SERVICE.**—These are the first and essential requirements of a roofing or siding material. Metal sheets have given such abundant proof of their ability to render good and lasting service that it is entirely unnecessary to dwell at length upon these particular points of merit. Instances are numerous where metal roofings have given from thirty to forty years of good protection, and have given value received many times over. One thing is important. Start your roof right by using a product of known value and worth, and also of sufficient weight to insure long life. Satisfactory results are then sure to follow.

**FIRE AND LIGHTNING PROOF.**—These are features of decided value to all owners of buildings in rural districts or communities removed from fire protection. No material can equal metal sheets for such purposes. We know of no instance where serious damage has resulted from lightning where buildings have been covered by metal roofs. The danger from sparks and falling embers is greatly lessened or eliminated by the use of metal roofings and sidings. Their use is strongly advocated by underwriters, and buildings so covered will always secure the lowest rate of insurance.

**ADAPTABILITY.**—The varied forms of our Roofing and Siding Materials make it possible to construct practically any type of building, with roof construction from nearly flat to that of the steepest pitch. The metal roof can be readily applied to what would otherwise be a very difficult roofing proposition.

**NEAT APPEARANCE.**—This feature is receiving more attention from owners of property. A group of metal roofs on a farm or country estate adds much to the appearance of the property and is quite in contrast to a group of streaked, vari-colored and unsightly roofs. Many owners of property prefer metal roofs for this feature alone.

**WEATHER RESISTING.**—Formed Roofing and Siding Materials are not injured by sudden changes of weather or temperature. Snow, wind, hail, ice, etc., which would work havoc with many other kinds of roofing, cannot seriously affect these metal roofings. Corrugated sheets do not suffer from expansion or contraction and are therefore not affected by sudden changes in weather, and when properly applied do not buckle nor rattle.



**REASONABLE COST.**—Metal roofings are cheaper than wood shingles, that is, good wood shingles; and while costing practically the same as felt or tar roofings, are much superior to either. We call attention to the fact that it is false economy to buy roofing sheets in too light a gauge. Get your roofing heavy enough to insure long service. You exercise this precaution in purchasing lumber, you should do the same in sheet metal.

**FULL WEIGHT SHEETS.**—This is an important feature and a decided advantage to every user of roofings. Unscrupulous manufacturers have put on the market products that are lighter than standard weights. The results have been unsatisfactory service and criticisms of metal roofings and sidings. This is unfair, since there is a fixed standard of weights. We publish it in the latter part of this book. See that your sheets weigh up to it. The only variation permissible is the very slight variation above or below, unavoidable in the best of mill practice. Instances are frequent where roofings have been purchased which varied one or two gauges from the standard the purchaser was led to believe he was receiving. The products of this Company are strictly standard and *full weight* per square.

**CLEAN AND SANITARY.**—This is an important feature where water from roofs is run into cisterns. Metal roofs have a smooth surface, and the wind keeps them clean and free from dirt, leaving nothing to wash into the cistern. Users of cistern water are pleased to find how much cleaner the water is than that from shingle, gravel or composition roofs which are retentive of dirt and foreign matter.

**LIGHT WEIGHT AND RIGIDITY.**—The use of corrugated patterns imparts additional strength and rigidity without the use of closely laid sheathing, thus considerably reducing the cost of construction and at the same time insuring a roof fully as strong as

many other types of roofs requiring solid sheathing. This is true to a greater or lesser extent in the use of flat sheets and other formed patterns. The light weight of metal roofings renders unnecessary the heavy structural work required to carry a roof as heavy as slate, tile and other heavier materials.

**EASE OF APPLICATION.**—These formed sheets are easy to apply and do not necessarily require the employment of experienced labor. The only tools necessary are a hammer or hatchet, and a pair of tinner's snips, in case you should desire to cut some of the sheets. On pages 36 to 42, of this book we give full directions as to measurements and methods of application for the various patterns.

**OTHER ADVANTAGES.**—In addition to the foregoing, these products possess many other desirable features, in that they do not crack, warp, split, run, blow off, clog gutters, nor develop any of the expensive and annoying traits common to many other roofings. We believe that iron and steel sheets are the most practical and satisfactory roofing and siding material that can be obtained for all classes of buildings to which they are applicable. On pages 43 to 49 we show these various products, together with brands and data for the guidance of those interested in securing the highest grade of Formed Metal Roofings and Sidings.

**HOW TO SECURE "APOLLO" ROOFINGS AND SIDINGS.**—If your Hardware or Builders' Supply Dealer does not carry "APOLLO" or "AMERICAN" brands, he can easily secure them for you from his jobber. If for any reason he is unable to secure them, or attempts to substitute some other brand, then write direct to our general office or to our nearest district sales office. We will see that your requirements are supplied.

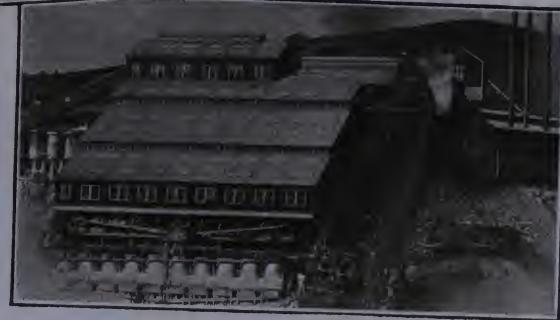
*We are indebted to the Radford Architectural Company, Chicago, for many of the illustrations shown on following pages.*

*"BETTER BUILDINGS"*





*American Sheet and Tin Plate Company*

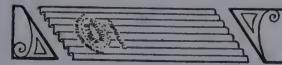


Formed Roofing and Siding Products are specially adapted to all kinds of factory and mill construction. The above plants are covered with Corrugated Sheets. (See pages 43 to 49.)

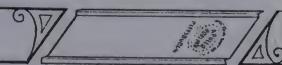
*"BETTER BUILDINGS"*



Corrugated and Formed Products as applied to grain elevators, packing houses, warehouses, railway sheds and boat houses.  
(See pages 43 to 49.)



*American Sheet and Tin Plate Company*

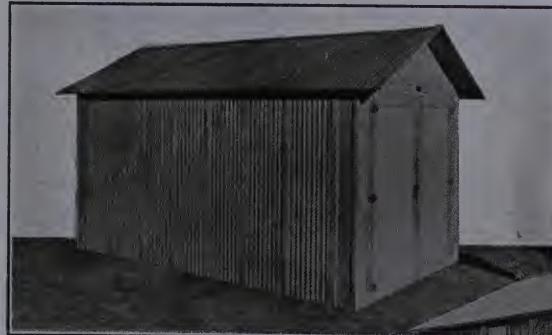
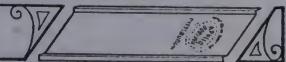


High grade Terne Plates are the best roofing material for homes, churches and public buildings.  
(See pages 43 to 51.)

*"BETTER BUILDINGS"*



Plain Roofings and Terne Plates are specially adapted for bungalows, cottages and summer residences.  
(See pages 43 to 51.)

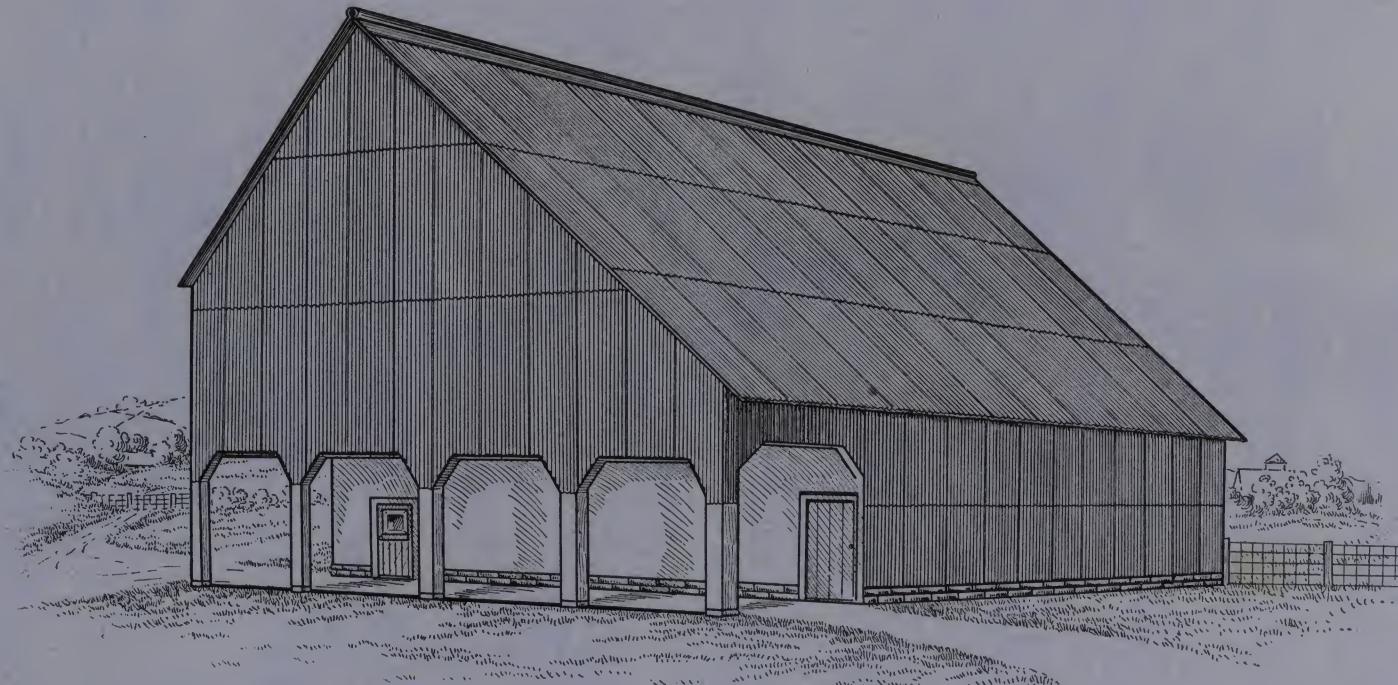
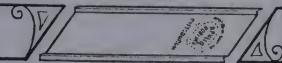


Portable sheet metal garages, houses, grain bins, sheds and shelters are in increasingly popular favor. We do not make such buildings—only the sheets entering into same. We will gladly furnish names of such manufacturers who use the high grade APOLLO and AMERICAN Sheets. This is important to buyers of such portable buildings.



*“BETTER BUILDINGS”*





**FIG. 1-a**  
Farm Barn covered with Corrugated Roofing and Siding. (See pages 43 to 49.)

## ***“BETTER BUILDINGS”***

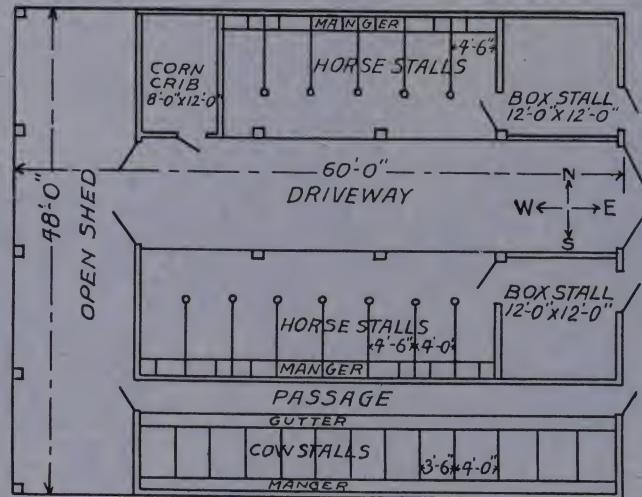


FIG. 1-b

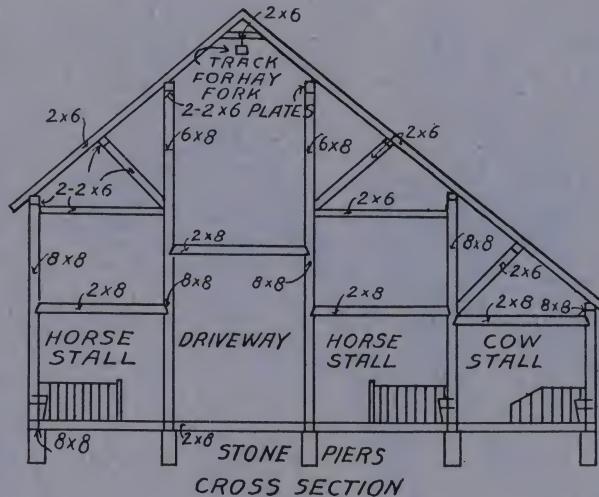


FIG. 1-c

Floor Plan and Cross Section of Barn shown on opposite page.

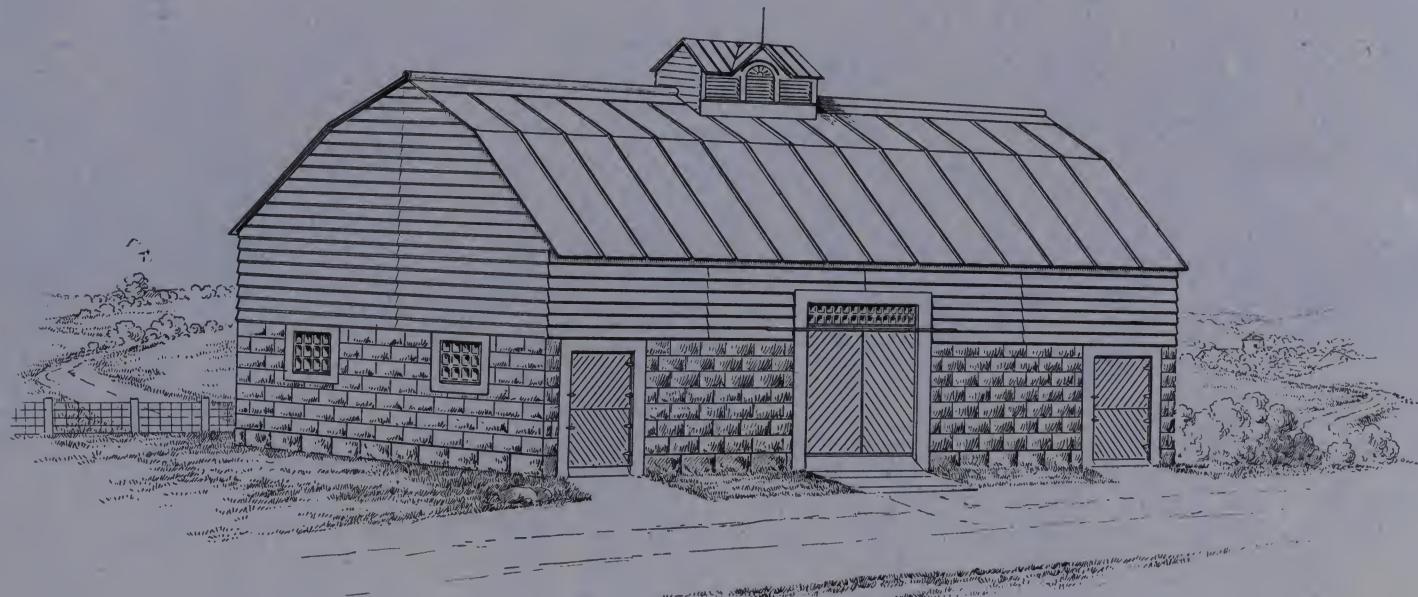
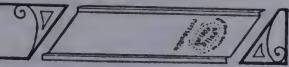


FIG. 2-a

Barn covered with V-Crimped Roofing and Rock Face Stone and Weatherboard Siding. (See pages 43 to 49.)

## **“BETTER BUILDINGS”**

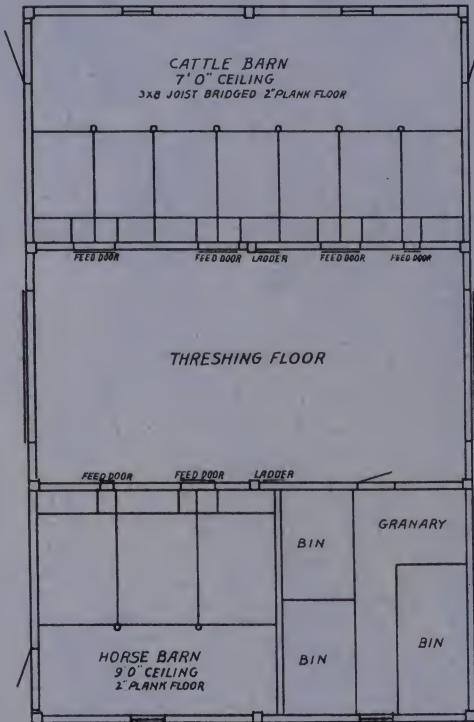


FIG. 2-b

Floor Plan and Cross Section of Barn shown on opposite page.

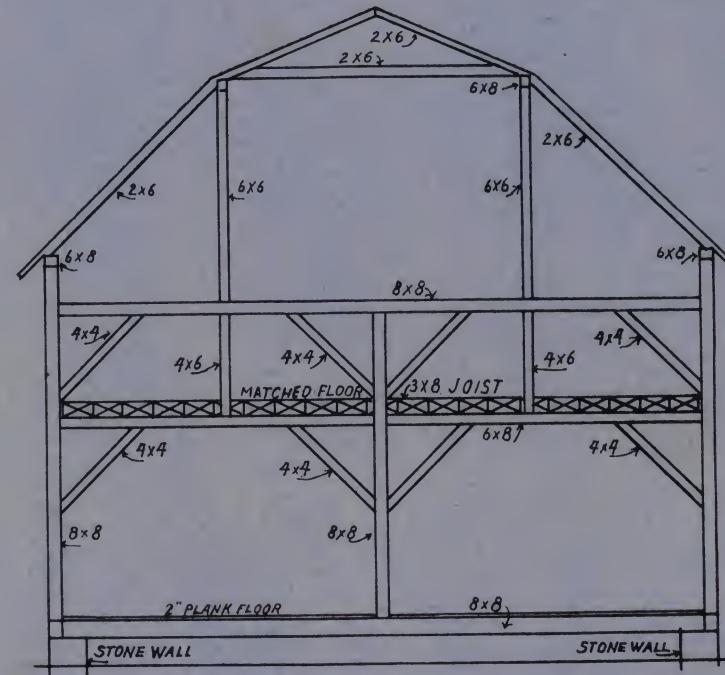


FIG. 2-c

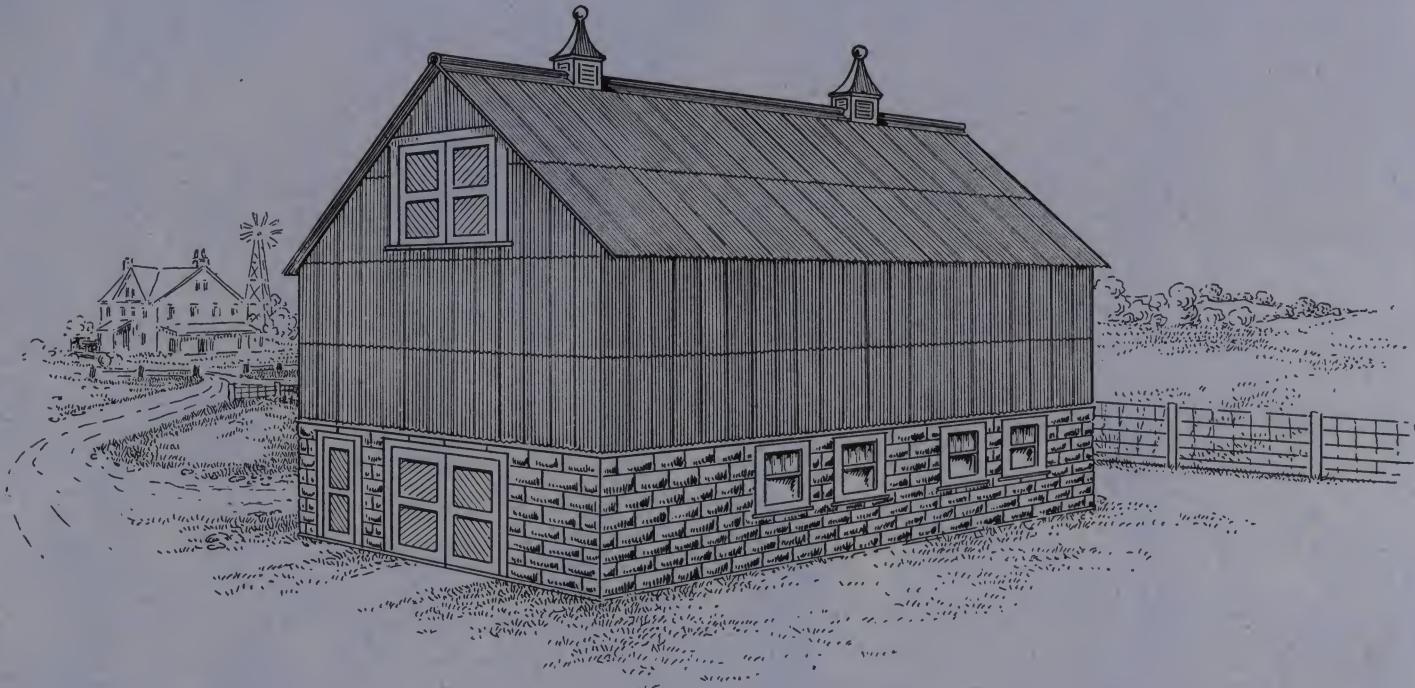
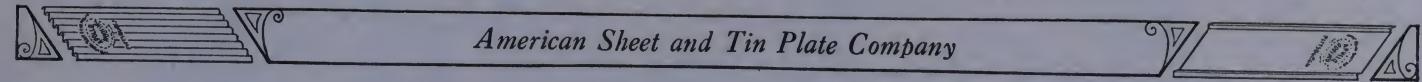


FIG. 3-a

Barn covered with Corrugated Sheets and Rock Face Stone Siding. (See pages 43 to 49.)

"BETTER BUILDINGS"

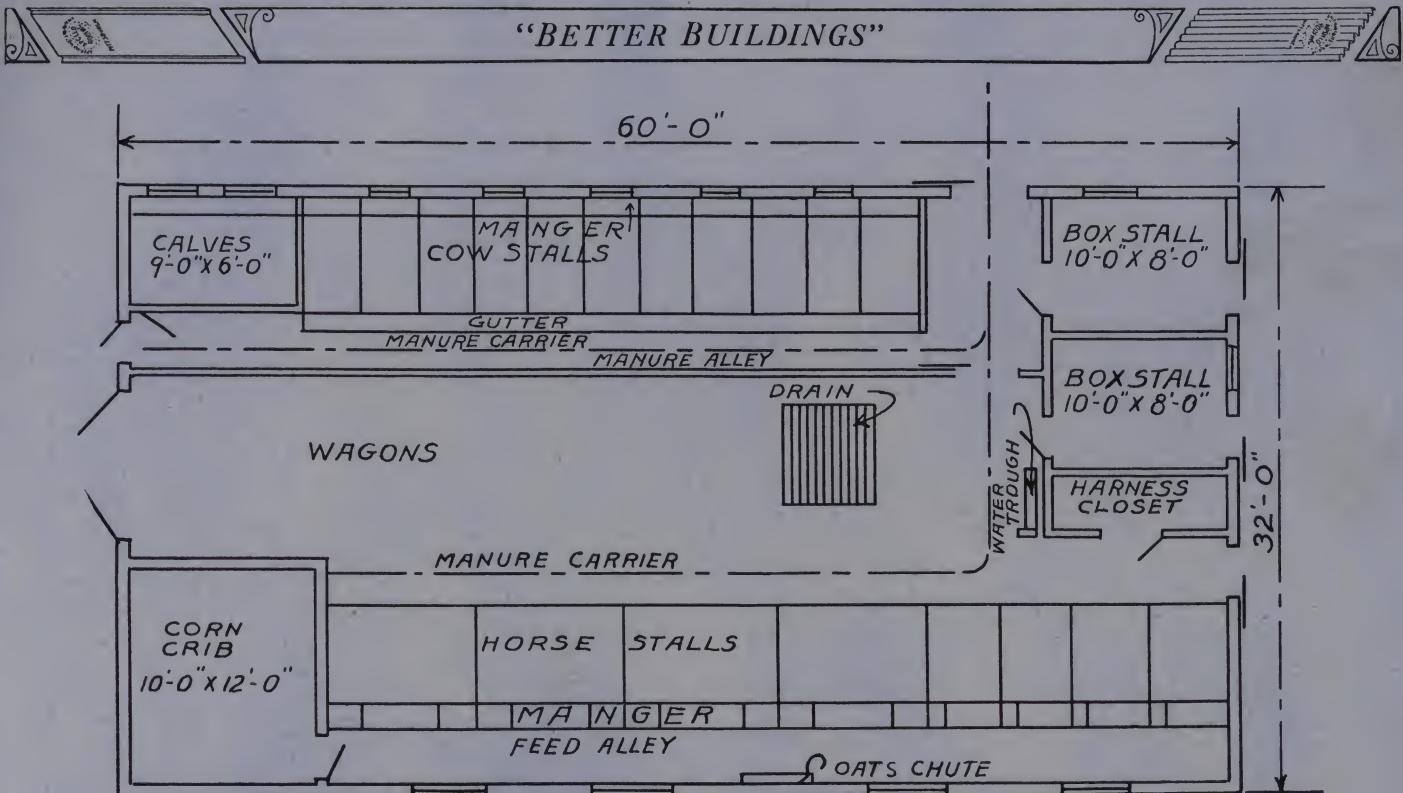


FIG. 3-b  
Floor Plan of Barn shown on opposite page.



FIG. 4-a

Barn covered with Pressed Standing Seam Roofing and Weatherboard Siding. (See pages 43 to 49.)

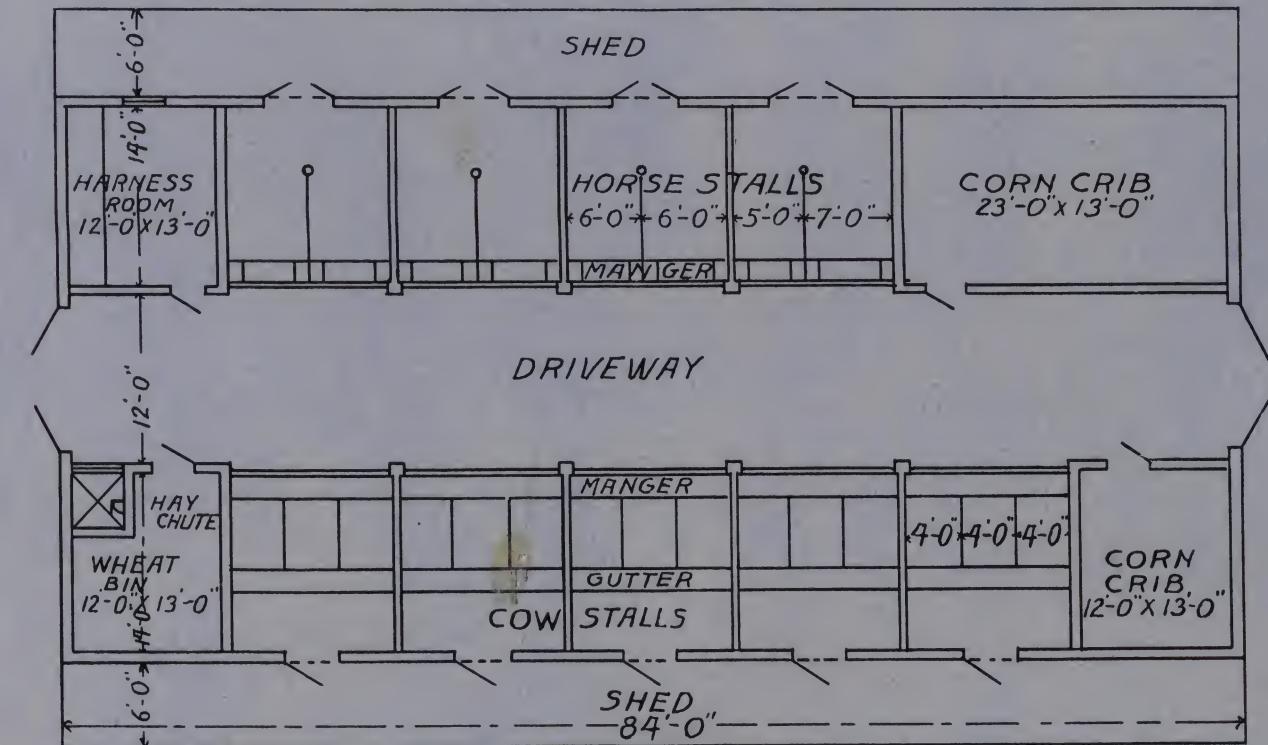


FIG. 4-b  
Cut showing Floor Plan of Barn on opposite page.

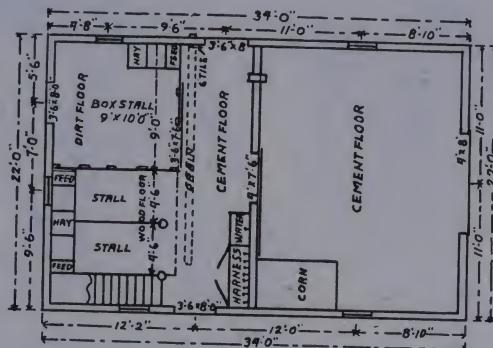
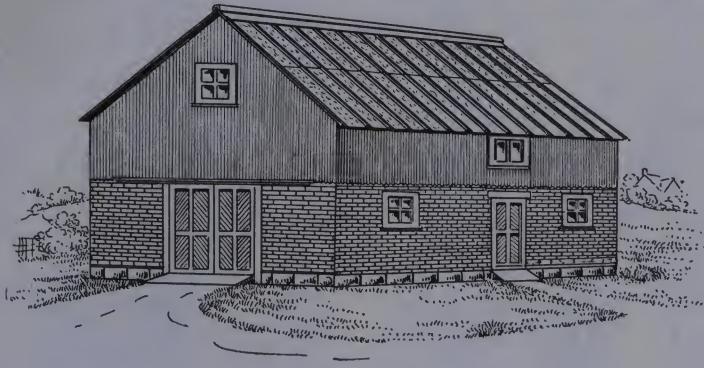


FIG. 5—(with Floor Plan)  
Small Barn covered with V-Crimped Roofing  
Corrugated and Plain Brick Siding.

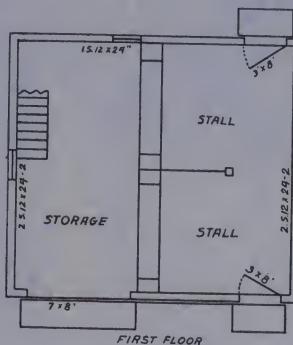
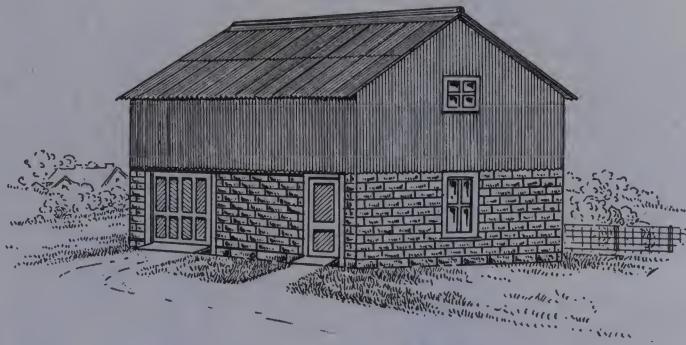


FIG. 6—(with Floor Plan)  
Small Barn covered with Corrugated Sheets and Rock Face  
Stone Siding. (See pages 43 to 49.)

"BETTER BUILDINGS"

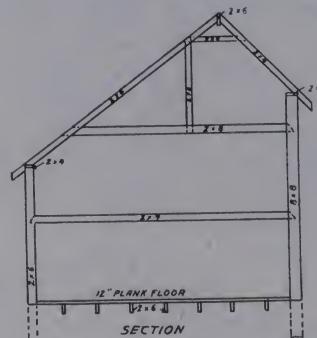
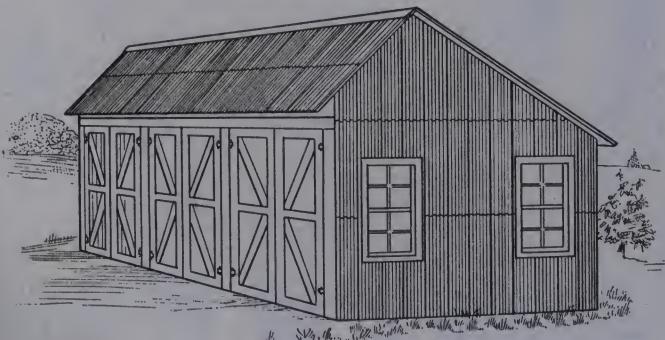


FIG. 7—(with Cross Section)  
Implement Shed covered with Corrugated Roofing and Siding.

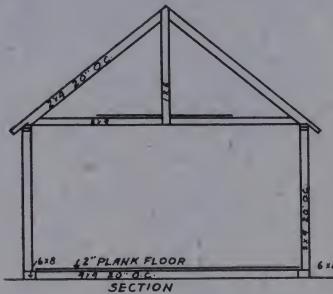


FIG. 8—(with Cross Section)  
Small Wagon Shed covered with Corrugated. (See pages 43 to 49.)

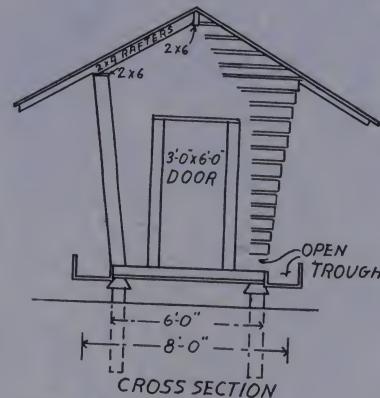
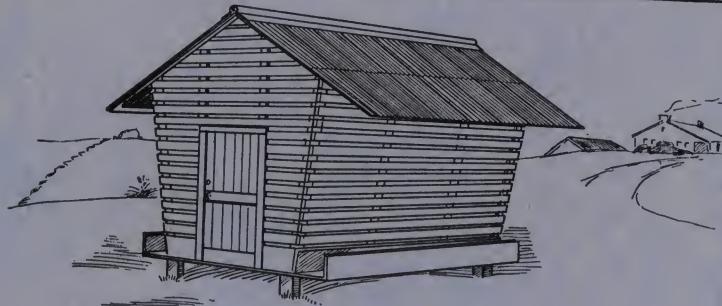


FIG. 9—(with End Elevation)  
Corn Crib covered with Corrugated. (See pages 43 to 49.)

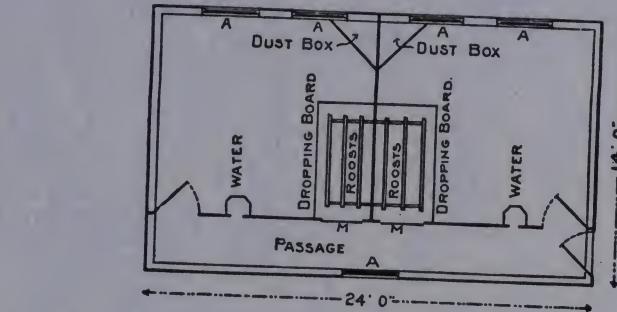


FIG. 10—(with Floor Plan)  
Poultry House covered with V-Crimped Roofing and Plain Brick Siding.

"BETTER BUILDINGS"

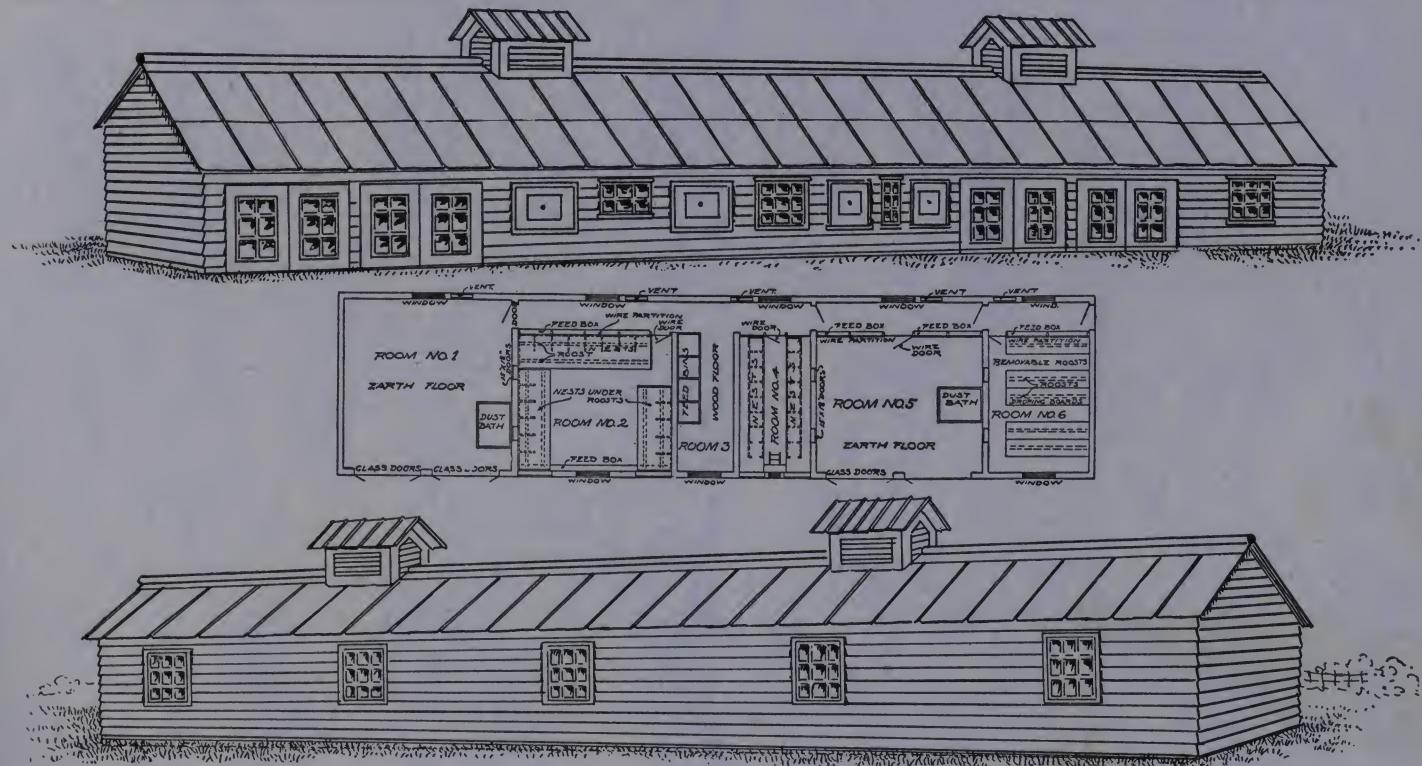


FIG. 11—(with Floor Plan)

Large Poultry House covered with V-Crimped Roofing and Weatherboard Siding. (See pages 43 to 49.) The colder climates will require poultry houses to be lined, in addition to the metal covering, to secure warmth.

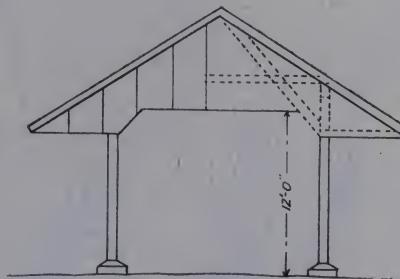
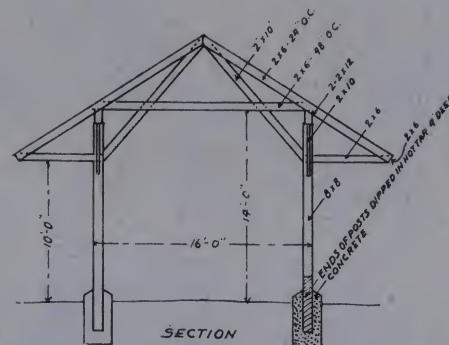
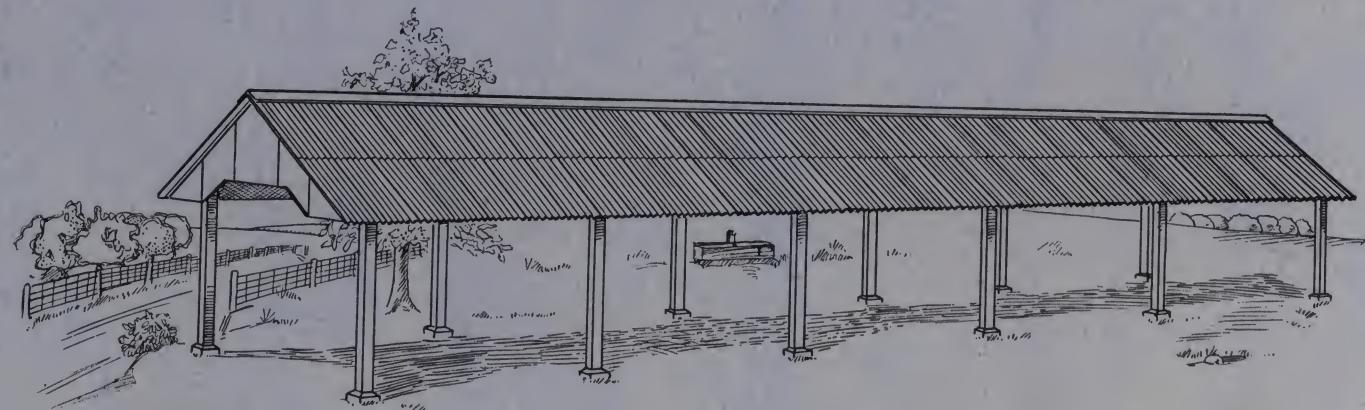


FIG. 12—(with End Sections)  
Long Shelter Shed covered with Corrugated. (See pages 43 to 49.)

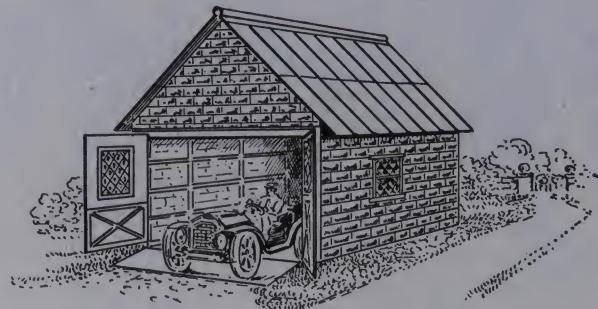


FIG. 13  
Low Cost Garage.



FIG. 14  
Storage Shed.

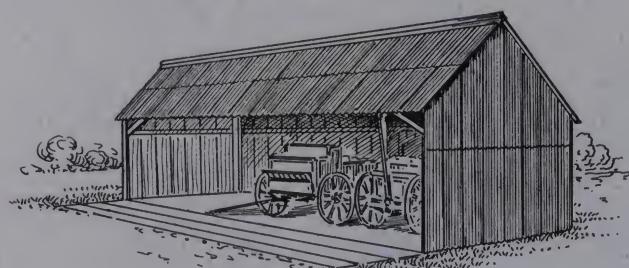


FIG. 15  
Wagon and Implement Shed.

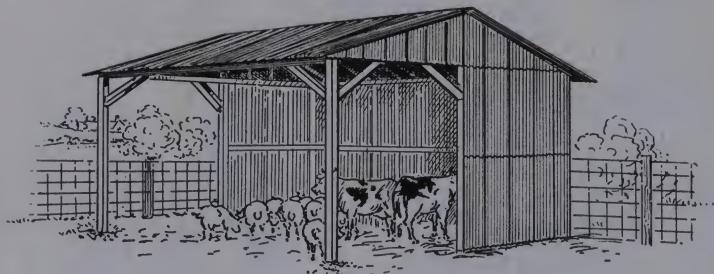


FIG. 16  
Stock Shelter.

Practical applications of Formed Roofing and Siding Products. (See pages 43 to 49.)



FIG. 17  
Hay Shed.



FIG. 18  
Pump House.

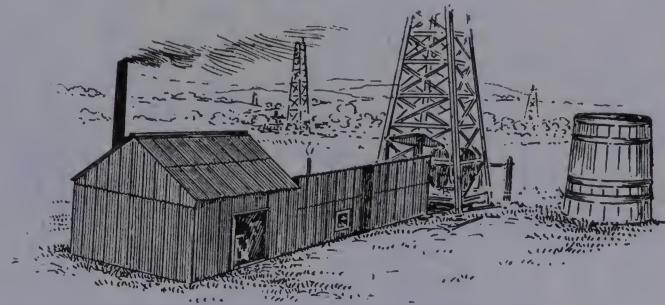


FIG. 19  
Boiler and Belt House.

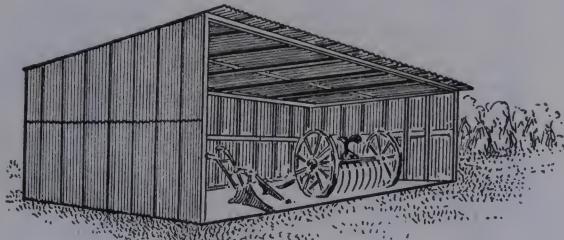


FIG. 20  
Implement Shed.

Practical applications of Corrugated Roofing and Siding. (See pages 43 to 49.)

*“BETTER BUILDINGS”*



FIG. 21  
Store Building covered with Pressed Brick Siding.

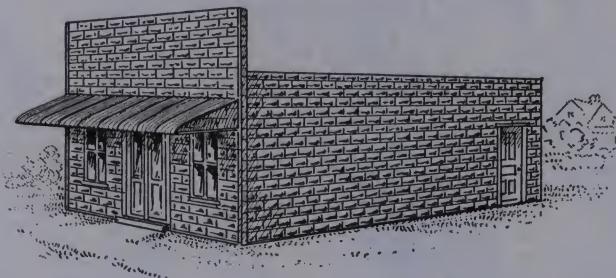


FIG. 22  
Small Market covered with Rock Face Stone Siding.  
(See pages 43 to 49.)

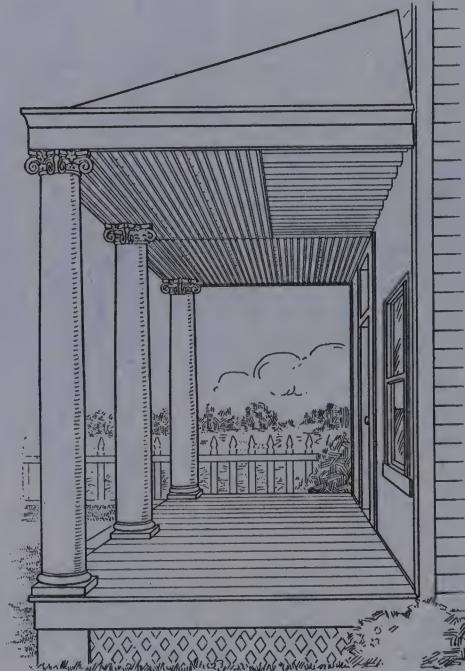


FIG. 23  
Showing application of Beaded Ceiling.  
(See page 48.)



FIG. 24

Cambridge Rigid Reversible Metal Lath for interior and exterior uses. (See page 49.)



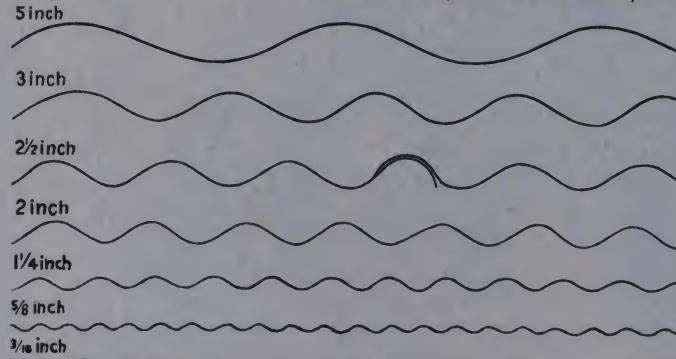
FIG. 25

## Important to Buyers and Users of Formed Products

### CORRUGATED SHEETS

are the strongest and most rigid of all forms of Sheet Metal Roofing or Siding. Sheathing is not essential, and as Corrugated Sheets are easily and rapidly applied, this form is more generally used than any other pattern.

We make seven standard widths of corrugations:  $\frac{3}{16}$ ,  $\frac{5}{8}$ ,  $1\frac{1}{4}$ ,  $2$ ,  $2\frac{1}{2}$ ,  $3$  and  $5$  inches, in either Galvanized, Black or Painted, and



in standard lengths of  $5$ ,  $6$ ,  $7$ ,  $8$ ,  $9$  and  $10$  feet, and with a maximum length of  $12$  feet.  $3\frac{1}{16}$  inch, Crimped crosswise, has a maximum width of  $39\frac{1}{2}$  inches. All our Corrugated Sheets have a uniform covering width of  $24$  inches. Pressed Standing Seam, V-Crimped and  $3$  V-Crimped Roofings are made in the same lengths as the Corrugated patterns. Roll Roofings are packed in rolls containing  $50$

lineal feet and when applied will cover  $100$  square feet of surface. Brick and Stone Sidings are made in one size only, sheets  $28 \times 60$  inches. Beaded Ceiling or Siding and Weatherboard Siding are made in same size sheets as the Corrugated. Since the Corrugated pattern is perhaps more popular than any other, we shall give the matter of its application more general consideration.

### A SQUARE OF ROOFING

consists of one hundred ( $100$ ) square feet, which means sheets enough to make a total of one hundred ( $100$ ) square feet, or a space ten feet square, not including the laps as mentioned under the head "Directions for Measurements."  $10\%$  additional should usually be added to your surface measurements to cover laps.

### SERVICE TESTS

The only reasonable and safe test of a roofing or siding material is the test of time and service. These products have been on the market long enough to demonstrate their value. However, much has been said of certain metal roofings and sidings being "rust proof," "non-corrosive," etc. These are misleading terms when applied to such products. Any exposed iron or steel sheet will rust or corrode unless coated, galvanized or painted. This is a plain statement of fact. The best and safest guarantee for the customer is to buy a product of known value. The "acid test," another misleading term when applied to service, should not be considered in connection with roofings and sidings. Dipping a sheet in a solution of sulphuric acid does not indicate how long it will last on a building; time only will prove that. Demonstrations have shown where sheets giving forty years' service have been destroyed in a few hours by a solution of sulphuric acid. Well informed buyers and users of metal roofs utterly discredit the use of acid as a test of their ability to last.

### GALVANIZING

The galvanizing of sheets is effected by passing the black or uncoated sheets, after they have been thoroughly cleaned and prepared, through pure molten zinc. By this process the surface is uniformly covered by an adherent coating of zinc which excludes the oxygen and moisture of the atmosphere and prevents corrosion and rust. Galvanizing is the best and most satisfactory method ever discovered to prevent metal sheets from corrosion.

### PAINTING

In the event the customer does not wish to purchase galvanized sheets, the same results can be obtained by painting. The sheets of our "AMERICAN" brand are mechanically painted at our mills if desired, but should be repainted after placing on the roof. We advise only the best linseed oil and oxide paint, not only for roofs but for all sheet metal work. We believe that many of the objections lodged against sheet metal work, because of its rusting, belongs rightfully to the poor quality of paint used. It is economy to use only the best grade of paint. The objection raised against a metal roof by many prepared roofing manufacturers—"it has to be painted," is altogether misleading. Of course it has to be painted, just the same as your house, wood work, implements and automobile. The saving in insurance alone will often cover this very nominal

expense, while your property is improved greatly in appearance and is enhanced in value by being covered with these high grade products.

### BRANDS

These materials are packed in bundles of some ten to twelve sheets each, the top sheet of which is stenciled with the brand. If the sheets are galvanized, the stencil is "APOLLO" as noted heretofore; if plain or painted, the stencil will be "AMERICAN." Inspect every bundle to see that the brand appears on each, so that your product may be uniform throughout.

### GAUGES

These Formed Roofing and Siding Products are made in several gauges or thicknesses, as is clearly indicated on the table of weights shown on page 35. The lower the gauge number the heavier is the weight. For example, 26 gauge is heavier than 28 gauge. In purchasing roofing and siding, we advocate the securing of a gauge of sufficient weight to give the best results. In past years roofing lighter than 26 gauge was not even considered, and the heavier gauges were quite generally used. This explains the excellent results secured. We also call attention to the fact previously stated that many unscrupulous manufacturers are placing on the market products which are not true to gauge and are not full weight. Following is a table of standard weights per square. This offers a means of protection to all buyers of Formed Products.



## Standard Weights per Square of Formed Products

PRODUCT GAUGE NO.	PAINTED												GALVANIZED													
	28	27	26	25	24	23	22	21	20	18	16	14	12	28	27	26	25	24	23	22	21	20	18	16	14	12
2, 2½, 3 and 5 in. Corrugated	68	76	83	96	110	123	136	150	163	217	271	339	474	85	91	98	111	124	138	151	165	178	232	286	354	488
½ and 1¼ in. Corrugated	72	79	86	100	114	128	142	156	170	.....	87	94	101	.....	129	.....	157	.....	185	.....	.....	.....	.....	.....	.....	
V-Crimped, without sticks	70	76	83	.....	110	.....	137	.....	164	.....	85	91	98	.....	125	.....	152	.....	179	.....	.....	.....	.....	.....	.....	
Three V-Crimped, without sticks	72	79	86	.....	114	.....	142	.....	170	.....	88	95	102	.....	130	.....	158	.....	186	.....	.....	.....	.....	.....	.....	
Pressed Standing Seam, with Cleat	73	79	86	.....	113	.....	141	.....	169	.....	87	94	101	.....	128	.....	156	.....	184	.....	.....	.....	.....	.....	.....	
Roll Roofing, without Cleats	72	79	86	.....	114	.....	142	.....	.....	.....	88	95	102	.....	130	.....	158	.....	.....	.....	.....	.....	.....	.....	.....	
Roll & Cap Roofing, Caps and Cleats	77	84	91	.....	119	.....	.....	.....	.....	.....	93	100	106	.....	134	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Beaded Ceiling	70	76	83	.....	110	.....	.....	.....	.....	.....	85	91	98	.....	125	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Weatherboard Siding	72	79	86	.....	113	.....	142	.....	.....	.....	88	95	102	.....	130	.....	158	.....	.....	.....	.....	.....	.....	.....	.....	
Plain Brick Siding	64	71	77	.....	.....	.....	.....	.....	.....	.....	78	85	91	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Rock Face Brick Siding	65	72	78	.....	.....	.....	.....	.....	.....	.....	79	86	92	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Rock Face Stone Siding	65	72	78	.....	.....	.....	.....	.....	.....	.....	79	86	92	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	

Number of Corrugated Sheets in One Square  
(100 sq. ft.—no allowance for laps)

Length of Sheet	2, 2½, 3 and 5 inch Corrugations (Sheet 26 inches wide)	½ and 1¼ inch Corrugations (Sheet 25 inches wide)
60 inches	9.231	9.600
72 inches	7.692	8.000
84 inches	6.593	6.857
96 inches	5.769	6.000
108 inches	5.128	5.333
120 inches	4.616	4.800
144 inches	3.846	4.000

Number of Square Feet in One Corrugated Sheet  
(Standard Lengths)

Length of Sheet	2, 2½, 3 and 5 inch Corrugations (Sheet 26 inches wide)	½ and 1¼ inch Corrugations (Sheet 25 inches wide)
60 inches	10.833	10.416
72 inches	13.000	12.500
84 inches	15.166	14.583
96 inches	17.333	16.666
108 inches	19.500	18.750
120 inches	21.666	20.833
144 inches	26.000	25.000



## Directions for Measurements and Methods of Application

### DIRECTIONS FOR MEASUREMENTS

To find the quantity of roofing or siding required, multiply the length by the width of each space or surface to be covered. The result is surface measurement to which should be added 10% of same to cover end and side laps. In gable measurement, multiply the width by the height and take one-half of the result which will give surface measurement, then add 10% for the laps.

The following diagrams show methods for measurement.

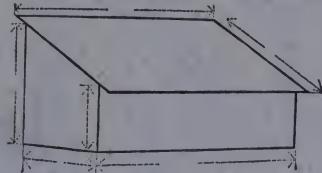


Fig. A—For Shed Roofs



Fig. C—For Hip Roofs

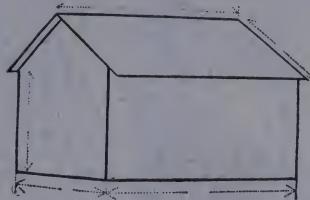


Fig. B—For Ridge Roofs

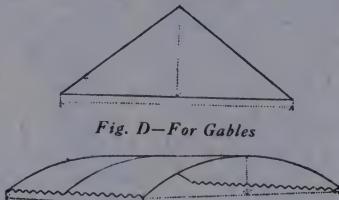


Fig. D—For Gables

Fig. E—For Curved Sheets for Ceilings

Allow for projections, if for Roofing. If for Ceiling, state exact distance between webs of "I" beams, lengths and number of spaces to be covered. For Curved Sheets, always state whether to be used for Roofing or Ceiling, taking measurements as indicated.

### APPLICATION OF CORRUGATED SHEETS FOR ROOFING—WOODEN FRAMING

When ready to begin laying Corrugated Roofing on a building, consider first from which direction your heaviest winds and rains usually come. If from the right, begin laying the Roofing at the left hand side. If from the left, begin at the right hand side. Lay the first sheet at the lower corner of your roof—either right or left side, as explained above—allowing one corrugation of the sheet to project over the roof boards at side, and also from 2 to 3 inches of the end of the sheet to project at the eaves. Keep the corrugations in straight lines up and down the roof to make a neat appearing and effective job.

First, hammer down the projecting corrugation at side, over the edge of the roof boards and nail it there securely in place. Then nail across the sheet through the tops of alternate corrugations close to the eave. It is unnecessary to drive nails through the body of the sheet, all nails being in the sides and ends of sheets. Lay the second sheet side by side with the first, lap it over the first sheet  $1\frac{1}{2}$  corrugations, and then nail the two sheets together through this lap,



Fig. F

the nails being driven straight down through the tops of the corrugations and about 8 inches apart. Also, nail across the eave as on the first sheet, each alternate corrugation. The third sheet is laid exactly the same as the second, and the work is continued, sheet by sheet, until you complete the first row across the full length of the roof. Then begin on the second row of sheets and apply them as in the first row, allowing the  $1\frac{1}{2}$  corrugation side lap and 3 inches or more lap down over the first row of sheets, driving the nails

through both sheets, at end laps as well as side laps. Complete this row across the roof before beginning with the third row, and continue until the roof is completed.

Always drive the nails vertically and through the tops of corrugations as described above; do not drive nails through the interior of a sheet—it is unnecessary.

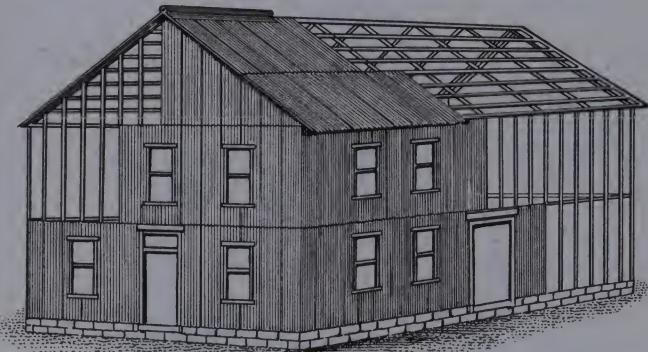


Fig. G

We would urge particular attention to keeping straight lines throughout. It would be a good plan to strike chalk lines across the roof as well as up and down, so that you will be sure to have the corrugated sheets straight.

We recommend that while the roofing is being put on, you use a continuous string of thick metallic paint, paste or cement—made by mixing dry metallic paint with linseed oil—between laps of sheets, to aid in making them water-tight. Where this plan is thoroughly executed, there can not be the slightest leakage.

Corrugated sheets of light gauges should not be applied directly to rafters. It will be equally as cheap, and much more effective, to place purlins of 1x4 inch stuff, say 8 inches apart. In this case, the rafters can be at any distance your best judgment dictates, and need not be placed so accurately as would otherwise be necessary.

Where the heavy gauges of sheets are used, sheathing boards may be dispensed with, so far as providing support for the roofing is concerned, and purlins substituted, thus economizing in lumber. The maximum spacing of purlins would be for No. 24 gauge, two feet; No. 22, two to three feet; No. 20, three to four feet, and No. 18 or 16, four to six feet. With the lighter gauges No. 26 and No. 28 U. S. Standard Gauge, we consider it advisable to use close sheathing of common stock boards.

For steep roofs, a lap of three inches at the ends of sheets is ample. Where the pitch is less than three inches per foot, we recommend the use of our Standing Seam, or our Roll and Cap Roofing.

Where hot air, steam, or sulphurous fumes will come in contact with the under side of a roof, use a Felt Lining between the sheathing and the roofing.

When two or more length sheets are used, place the shortest sheets nearest the ridge. Be careful to lay sheets so that the corrugations of each will be in line accurately from ridge to eaves. Repaint the top side of the roofing immediately after applying, or as soon thereafter as the weather will permit.

For Roofing the better practice is to lap the sheets one and one-half corrugation as indicated above, nailing through top of corrugations.

#### FOR ROOFING—IRON FRAMING

For Roofing or Siding, iron framing, the side laps should be riveted every twelve to eighteen inches, or closer, and end laps on every other corrugation.

One of the best methods for fastening the sheets to iron beams and purlins, is by passing a cleat of band iron  $\frac{3}{4}$  or  $\frac{7}{8}$  inch wide

around the purlins or beams, and rivet both ends to the sheet; by contracting or pressing this cleat toward web of beams or purlins, a tight and secure fastening is made which allows for contraction or expansion of the sheet.



Fig. H



Fig. I



Fig. J



Fig. K

The above illustrations show several methods for applying Corrugated Roofing to iron roof frame work. Fig. H shows strap iron cleat riveted at each end; Fig. I shows a long wire or clinch nail driven through the Corrugated Iron and bent around the angle iron; Fig. J shows a cleat made from bar iron, riveted firmly to the Corrugated Roofing and binding against the flange of Z bar or angle iron; and Fig. K a strap iron cleat riveted at one end only, the other end clamping the flange of channel iron.

#### FOR SIDING—WOODEN FRAMING

Use either  $2\frac{1}{2}$  inch, or  $1\frac{1}{4}$  inch wide corrugations; the first is preferable. Allow for two inches lap at ends of sheets. Patent Edge  $2\frac{1}{2}$  inch Corrugated presents a paneled appearance.

Begin at the bottom, running first row across side, lapping one corrugation at side of each sheet. Be very careful to keep the edge

corrugations plumb, and in line. Put up the second row in the same manner, lapping ends of sheets down over the top of the first row; one or two inches is sufficient for this lap.

Where used without sheathing boards, the studding should be framed to measure twenty-four inches from center to center, or if preferred, put the studding three to four feet apart and nail the sheets to batten strips, placing these strips, say, two feet apart and across the studding horizontally.

Nail siding vertically through the tops of corrugations and horizontally in the valleys of corrugations. When studding is used, 2 by 4 inch lumber will answer usually.

Using heavy corrugated sheets, and dispensing with sheathing boards, lessens danger from fire, thereby reducing insurance. When the liability of injury from outside contact is considerable, a heavier gauge should be used than is otherwise necessary.

Do not let the Siding have contact with the ground, but *always use a base board.*



Fig. L

Our Corrugated sheets can be used in various ways as a substitute for cornice work and in a very effective manner, by giving the subject consideration.

For Siding, lap sheets but one corrugation. If sheets are used without sheathing, it is important that studding be 24 inches from center to center.

If Siding is to be used for barns, or uses where there is a hay pressure or strain against the sheets from the inside, it will be necessary to use sufficient sheathing to hold such pressure away from sheets. If siding is used on stables, we recommend close sheathing, or, better yet, an additional paper or felt lining, as the fumes from manure pits are detrimental to all metals, roofing and sidings included. This is also true of steam and gas.

### V-CRIMPED ROOFING

This style of Roofing has been in use probably as long as any other pattern, and has made for itself an enviable reputation. It may be applied to sheathing boards or lath, or directly over old shingles without removing the latter, and as the nails are driven directly through the roofing sheet, wooden  $\wedge$  strip and sheathing, it can be fastened down more firmly than some other styles of plain Roofing, and is therefore very favorably received in those parts of the country where high winds are of frequent occurrence.

This Roofing can also be readily and successfully applied directly to rafters. This form of construction is very economical of lumber, but for securing the greatest durability we recommend that sheathing boards be applied solid to the rafters, and the Roofing sheets nailed thereon. In placing the sheets on the roof these crimps lap

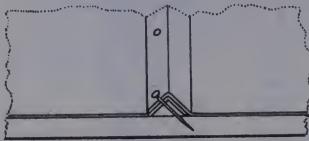


Fig. M

over each other and also over a triangular strip of wood which serves to support the joints and brace the sheets firmly.

When applying this roofing, always allow the roofing sheets to project one inch over the eaves, and then bend this projection down against the wood frame-work, nailing it fast to prevent wind and water blowing underneath the Roofing. We can not recommend V Crimped Roofing to be used where the pitch is less than two inches to the foot; for nearly flat roofs we suggest the use of Pressed Standing Seam Roofing or Roll and Cap Roofing.

This roofing, being applied without the use of cleats or other patent fastenings, is most simple and easy in its application, and is, therefore, often preferred.

Three V-Crimped is applied similar to the V-Crimped, except that the extra crimp gives an additional opportunity for nailing. This is an advantage for those districts subject to severe storms and high winds.

### PRESSED STANDING SEAM ROOFING

Begin at the left-hand end of the roof, at the eaves. Let the lower edge of first course of sheets project over the eaves one inch, afterwards bending them down and nailing fast to the sheathing boards.

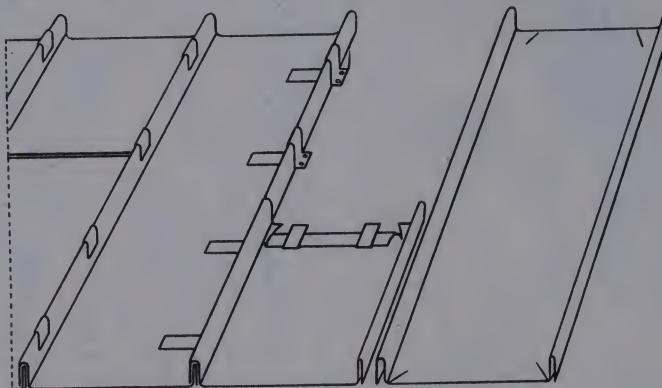


Fig. N

Make joint on upper end of sheet by turning lock with tool; then place the cleats along the single seam or flange, about one foot apart; join on another sheet the same way, turn locks at upper ends of sheets up, those at lower end down.